

CLAIMS

1. A method of reprogramming a vehicle and at least one smart key to provide access to said vehicle, the method comprising the steps of:

 inserting a first smart key into said vehicle
 determining whether said first smart key is a master key;
 placing said vehicle into a programming mode if said first smart key is a master key;
 inserting a second smart key into said vehicle; and
 configuring said vehicle and said second smart key to interoperate to start said vehicle when the second smart key is later inserted into said vehicle.
2. The method of operating the vehicle of claim 1, wherein the step of placing said vehicle in a programming mode includes the step of placing said vehicle in said programming mode for a predetermined period of time.
3. The method of operating the vehicle of claim 2, wherein the vehicle is configured to exit said programming mode after a predetermined period of inactivity.
4. The method of operating the vehicle of claim 3, wherein said predetermined period of inactivity is extended after insertion of said second smart key.
5. The method of claim 1, said vehicle is configured to signal entry into the programming mode.
6. The method of claim 5, wherein said vehicle signals entry into the programming mode by emitting light from an indicator light.
7. The method of claim 5, wherein said vehicle is configured to signal an exit from said programming mode.
8. The method of claim 7, wherein signaling an exit from said programming mode includes changing the state of a visual signal.
9. The method of claim 1, wherein prior to said step of programming said vehicle, said vehicle was configured to be operable by at least one operator's smart key.

10. The method of claim 9, wherein said at least one operator's smart key is disabled by said step of configuring said vehicle and said second smart key.

11. The method of claim 10, wherein at least two operator's smart keys are disabled by said step of configuring said vehicle and said second smart key.

12. A method of preventing at least some access to a vehicle by an otherwise access-granting operator smart key, comprising the steps of:

placing said vehicle into a programming mode;

inserting a second operator's smart key different from said access-granting operator's smart key;

programming said second operator's smart key and said vehicle to interoperate to start said vehicle after entering said programming mode;

substantially simultaneously programming said access-granting operator's smart key and said vehicle to interoperate to deny access to said vehicle using when said access-granting operator's smart key is used; and

exiting said programming mode.

13. The method of claim 12, wherein said step of placing said vehicle in a programming mode includes a step of inserting a master key into an ignition switch of said vehicle, wherein said master key is different from said access-granting operator's smart key and said second operator smart key.

14. The method of claim 13 wherein said step of placing said vehicle in a programming mode includes the step of placing said vehicle in the programming mode for a predetermined period of time.

15. The method of claim 14, wherein said vehicle signals entry into said programming mode by emitting light from an indicator light.

16. The method of claim 15, wherein said vehicle is configured to signal an exit from said programming mode.

17. The method of claim 16, wherein signaling an exit from said programming mode includes turning off said indicator light.

18. The method of claim 12, further comprising a step of programming a third operator smart key and said vehicle to interoperate to start said vehicle after said step of programming said second operator key and before said step of exiting said programming mode.

19. A system for controlling access to a vehicle, comprising:

- a controller in said vehicle including a radio transceiver configured to communicate with a smart key;

- a master smart key having at least one numeric value stored therein to indicate the identity of the master smart key; and

- a first operator smart key having at least a second numeric value stored therein to indicate the identity of the first operator smart key;

- wherein the controller is configured (1) to communicate with the master smart key when the master smart key is inserted into the vehicle, (2) to receive the at least one numeric value from the master smart key, (3) to enter into a vehicle access programming mode based at least upon the value of the at least one numeric value, (4) to receive the first operator smart key while in the programming mode, and (5) to program the controller and first operator smart key to interoperate to provide vehicle access to the first operator smart key.

20. The system of claim 19, wherein the access provided by the first operator smart key after programming is the ability to start an engine of the vehicle.

21. The system of claim 20, further comprising visual indicia operably coupled to the controller, and further wherein the controller is configured to turn the indicia on when the vehicle enters the programming mode.

22. The system of claim 21, wherein the controller is configured to exit the programming mode a predetermined time interval after it enters the programming mode.

23. The system of claim 22, wherein the controller is configured to extend the predetermined time interval whenever an operator smart key is reprogrammed.
24. The system of claim 1, wherein each of the first smart key, the second smart key and the master key includes both mechanical key portion and a digital communications circuit responsive to radio communications, the mechanical key portion being interoperable with a vehicle key switch, the mechanical key portion further having mechanical lock detents.
25. The system of claim 24, wherein the mechanical key portion and the transponder are mechanically coupled together, and further wherein the digital communications circuit includes a transponder responsive to radio signals transmitted by the vehicle.
26. The system of claim 25, wherein the transponder is molded together with the mechanical key portion.
27. The method of claim 19, wherein prior to programming the vehicle and first operator smart key, said controller was configured to be operable by at least another operator smart key.
28. The method of claim 27, wherein the controller is configured to disable said at least another operator smart key when said controller programs the controller and the first operator smart key to interoperate to provide vehicle access to the first operator smart key.
29. The method of claim 28, wherein said at least another operator smart key includes at least two operator smart keys.